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(71) Applicant (for all designated States except US): MALLINCKRODT INC. [US/US]; Lawrence L. Limpus, P.O. Box 5840, 675 McDonnell Boulevard, St. Louis, MO 63134 (US).			
(72) Inventor; and (75) Inventor/Applicant (for US only): CANTRELL, Gary, L. [US/US]; 509 Lakewood Drive, Troy, IL 62294 (US).			
(74) Agent: LIMPUS, Lawrence, L.; Mallinckrodt Inc., 675 McDonnell Boulevard, P.O. Box 5840, St. Louis, MO 63134 (US).			

(54) Title: NOVEL ULTRASOUND CONTRAST AGENTS

(57) Abstract

New and structurally distinct ultrasound contrast agents that comprise micron size microbubbles encapsulating a gas within a shell made from a blend of bipolar compounds having inter-molecular hydrophobic regions of mixed carbon chain length. The compounds have the following structure: R₁-X-Z; R₂-X-Z; and R₃-X-Z', where R₁, R₂ and R₃ are hydrophobic groups selected from the group consisting of straight-chained alkyls, alkylethers, alkylthioethers, alkyldisulfides, polyfluoroalkyls, and polyfluoroalkylethers having a carbon chain length greater than or equal to 16 and less than or equal to 32 and where R₁ is greater than R₂ and R₁ is greater than or equal to R₃; R₃ has one or more such hydrophobic groups having the same or different lengths; X is a linker connecting the hydrophobic group to the polar head group; Z is a polar head group selected from the group consisting of CO₂-M⁺, SO₃-M⁺, SO₄-M⁺, PO₃-M⁺, PO₄-M⁺₂, N(R)₄⁺, a pyridinium or substituted pyridinium group, and a zwitterionic group; R is selected from the group consisting of -H, -CH₃, alkyl, cycloalkyl, substituted cycloalkyls containing one or more heteroatoms, and benzyl and can be the same or different; and Z' is a nonionic group.